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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/405,653    09/24/99    NIE

S    202406

EXAMINER

HM12/1106

LEYDIG VOIT & MAYER LTD  
TWO PRUDENTIAL PLAZA  
SUITE 4900  
1800 NORTH STETSON  
CHICAGO IL 60601-6780

CHIN, C

ART UNIT

PAPER NUMBER

1641

DATE MAILED:

11/06/01

17

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.  
**09/405,653**

Applicant(s)  
**Nie et al**

Examiner  
**Chris Chin**

Art Unit  
**1641**



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Aug 15, 2001
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-23, 38, and 39 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23, 38, and 39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some\* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_
- 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

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## **DETAILED ACTION**

### ***Election/Restriction***

1. Applicant's arguments concerning the restriction are convincing. Claims 1-23 and 38-39 are pending.

### ***Claim Rejections - 35 U.S.C. § 112***

2. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is vague and indefinite. The recitation of "at least about one day" is not clear as to how long the claimed quantum dots are capable of remaining in solution.

### ***Claim Rejections - 35 U.S.C. § 102***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 1-6, 9-14, 17-18, 21, and 38-39 are rejected under 35 U.S.C. 102(e) as being anticipated by Weiss et al (U.S. Patent 5,990,479) for the reasons of record.

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In response to this rejection, Applicants argue that the semiconductor nanoparticles of Weiss et al lack the ability to stay in solution for extended periods of time, specifically for “at least about one day”. Applicants provided a 132 Declaration by Dr. Nie to support their argument. Applicants also argue that the nanoparticles of Weiss et al are substantially dissimilar to those of the instant invention because they contain a silica glass coating on their surface. Applicants further argue that the linking agents used in Weiss et al comprise hydrophilic groups which would prevent the nanoparticles from remaining in solution for at least one day. Applicants point to Example 1 of Weiss et al to support their argument.

Applicant’s arguments have been considered but are not convincing. Applicants have not shown that the nanoparticles of Weiss et al are not capable of staying in solution for the same amount of time as the instantly claimed quantum dot. Claim 1 essentially recites a particle comprising a core, a cap, and a hydrophilic attachment group. Weiss et al discloses a number of linking/attachment groups for use with their nanoparticles, see column 8 of Weiss et al, which can be considered hydrophilic in nature to one degree or another. Claim 1 fails to recite any limitation with respect to the degree of hydrophilicity that must be exhibited by the attachment group. The nanoparticles of Weiss et al possess the elements required to anticipate the claimed quantum dot, i.e. a core, a cap/shell, and hydrophilic attachment groups.

With respect to the 132 Declaration by Dr. Nie, Applicants should note that the patent number cited in the declaration as being that of the Weiss et al patent is incorrect. U.S. Patent 5,990,749 is not the Weiss et al patent. The point of this declaration was to show that the

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nanoparticles of Weiss et al could not stay in solution as the instantly claimed quantum dot. Specifically, Dr. Nie looked at the nanoparticles of Weiss et al exemplified in Example 2 for side-by-side comparison with the instantly claimed quantum dot. The evidence provided in the declaration is not convincing. The ability of the claimed quantum dots to stay in solution for at least about one day is being treated as an unexpected advantage over the prior art nanoparticles of Weiss et al. The evidence submitted in the declaration must be of a scope which is commensurate with the breadth of the claims. The evidence in the 132 declaration is not commensurate in scope with the instant claims. The instant claims are fairly broad and read on all of the embodiments of nanoparticles disclosed in Weiss et al. The evidence provided by Dr. Nie, at best, removes the embodiment shown in Example 2 of Weiss et al. The declaration of Dr. Nie does not address the other embodiments disclosed in Weiss et al which are encompassed by the instant claims.

The nanoparticles of Weiss et al are not substantially dissimilar to those of the instant invention as argued by Applicants. While it is true that Weiss et al discloses an embodiment wherein the shell/cap of the nanoparticles is composed of silica glass, as pointed out by Applicants, this is not the sole embodiment disclosed by Weiss et al. Weiss et al teach that the shell/cap on the nanoparticles can be composed of another semiconductor material, such as CDS, see column 6, lines 17-34 of Weiss et al.

With respect to Example 1 of Weiss et al, Applicants are correct in pointing out that the nanoparticles of Weiss et al do in fact come out of solution; however, Applicants should note that Weiss et al contacted the solution of nanoparticles with acetone for the purposes of precipitating

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out the nanoparticles. In the absence of the acetone, one can only surmise that the nanoparticles would have stayed in solution.

***Claim Rejections - 35 U.S.C. § 103***

5. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al (U.S. Patent 5,990,479) in view of Lawless et al (Journal of Physical Chemistry, 99, 10329, 1995) for the reasons of record.

In response to this rejection, Applicants argue that the nanocrystal compounds of Weiss et al and Lawless et al are created using different procedures. In the art, one ordinary skill would not necessarily believe that the linkers described in Lawless et al would be appropriate for the nanocrystals of Weiss et al.

Applicant's arguments have been considered but are not convincing. The instant claims rejected over Weiss et al in view of Lawless et al are not directed to methods of making nanocrystals so the differing procedures of Weiss et al and Lawless for making their nanocrystals is immaterial. Applicants have not provided any evidence to support their position that the linkers of Lawless et al would not be appropriate for the nanocrystal of Weiss et al. Without such evidence, Applicant's argument is not convincing.

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6. Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al (U.S. Patent 5,990,479) in view of Hines et al (Journal of Physical Chemistry, 100(2), 468, 1996) for the reasons of record.

7. Claims 19-20 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al (U.S. Patent 5,990,479) in view of Hines et al (Journal of Physical Chemistry, 100(2), 468, 1996) and Lawless et al (Journal of Physical Chemistry, 99, 10329, 1995) for the reasons of record.

***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chris Chin whose telephone number is (703) 308-3991. The examiner can normally be reached on Monday-Thursday from 9:30 am to 7:00 pm. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le, can be reached on (703) 305-3399. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-4242.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

cchin/cc  
November 5, 2001

  
CHRISTOPHER L. CHIN  
PRIMARY EXAMINER  
GROUP 1800-1641